FIG.1

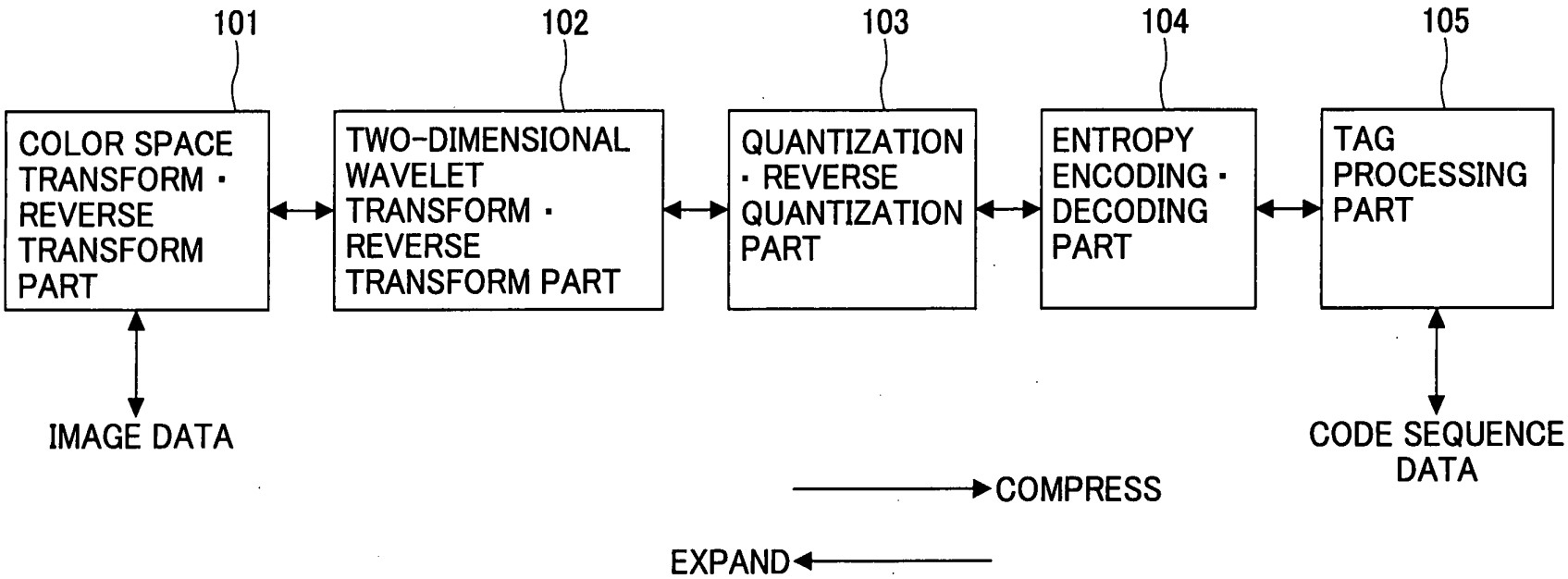

101
102
103
104
105
COLOR SPACE TRANSFORM · REVERSE TRANSFORM PART
TWO-DIMENSIONAL WAVELET TRANSFORM · REVERSE TRANSFORM PART
QUANTIZATION · REVERSE QUANTIZATION PART
ENTROPY ENCODING · DECODING PART
TAG PROCESSING PART
IMAGE DATA
CODE SEQUENCE DATA
COMPRESS
EXPAND

FIG.2

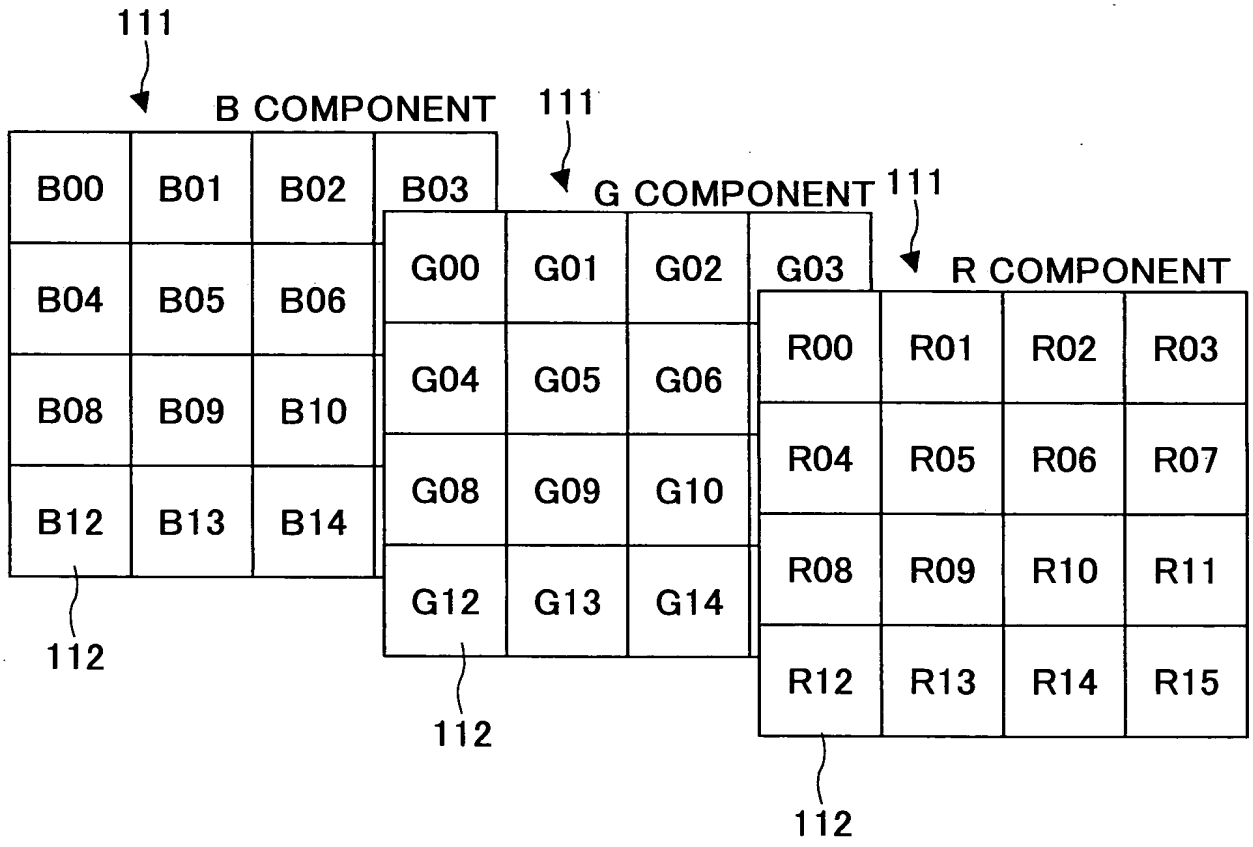
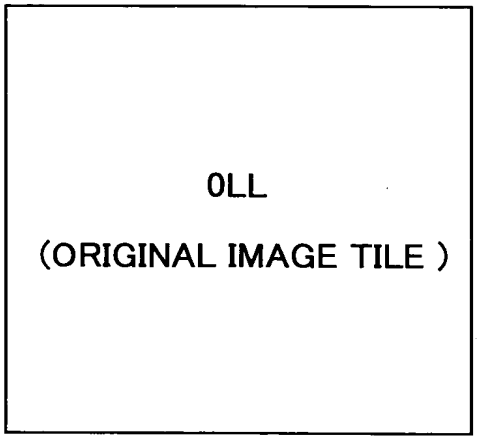
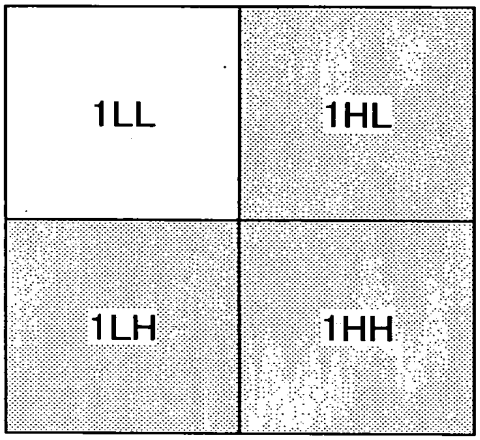

111
B COMPONENT
111
G COMPONENT
111
R COMPONENT
B00
B01
B02
B03
B04
B05
B06
B08
B09
B10
B12
B13
B14
G00
G01
G02
G03
G04
G05
G06
G08
G09
G10
G12
G13
G14
R00
R01
R02
R03
R04
R05
R06
R07
R08
R09
R10
R11
R12
R13
R14
R15
112
112
112

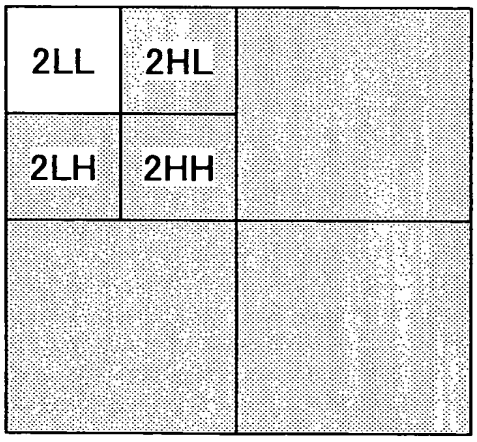
FIG.3



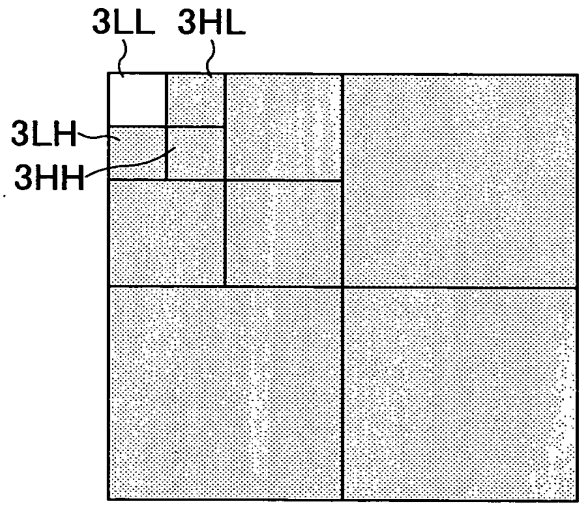
DECOMPOSITION LEVEL 0



DECOMPOSITION LEVEL 1



DECOMPOSITION LEVEL 2



DECOMPOSITION LEVEL 3

FIG.4

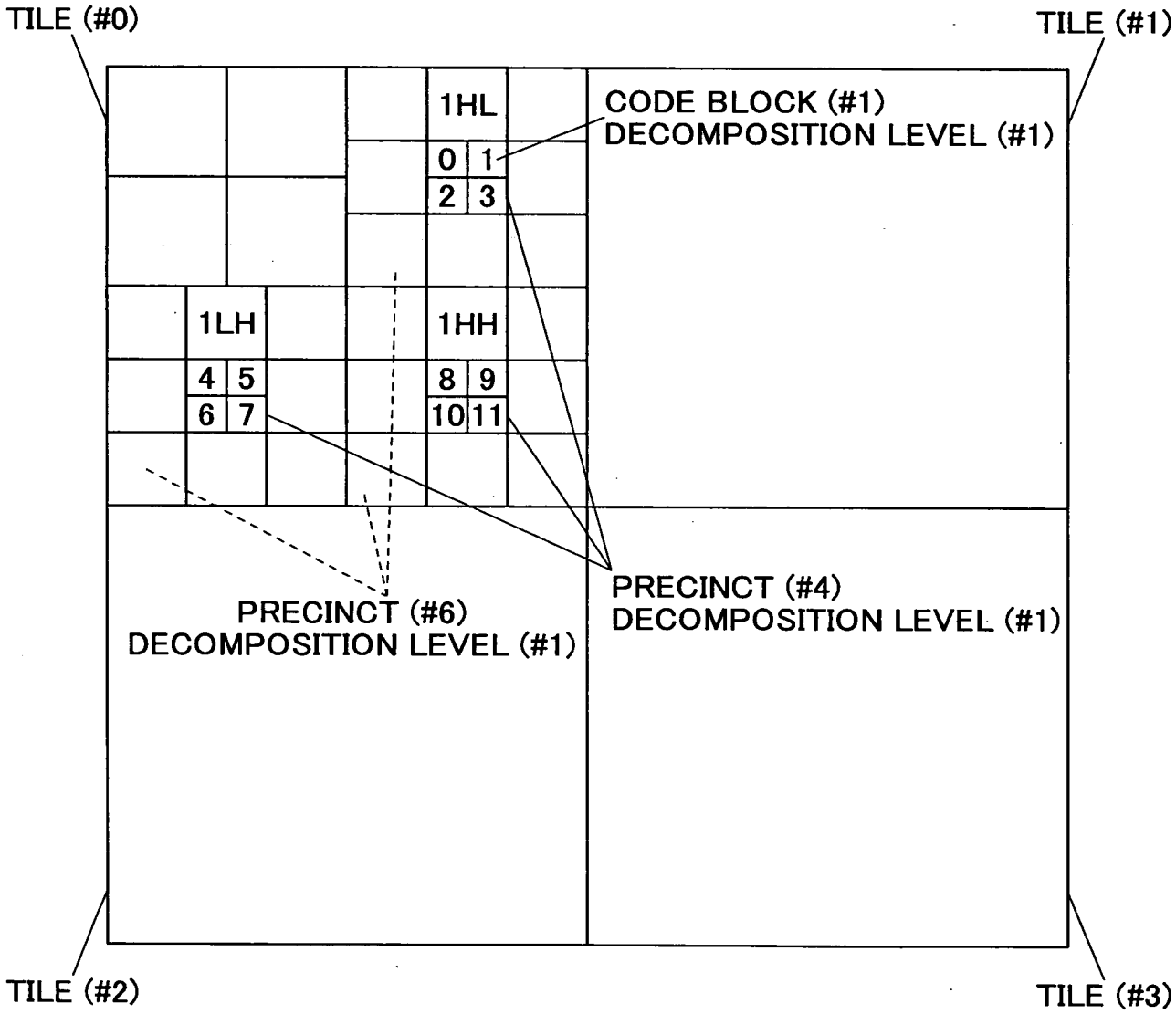

TILE (#0)
TILE (#1)
1HL
0 1
2 3
CODE BLOCK (#1)
DECOMPOSITION LEVEL (#1)
1LH
4 5
6 7
1HH
8 9
10 11
PRECINCT (#6)
DECOMPOSITION LEVEL (#1)
PRECINCT (#4)
DECOMPOSITION LEVEL (#1)
TILE (#2)
TILE (#3)

FIG.5

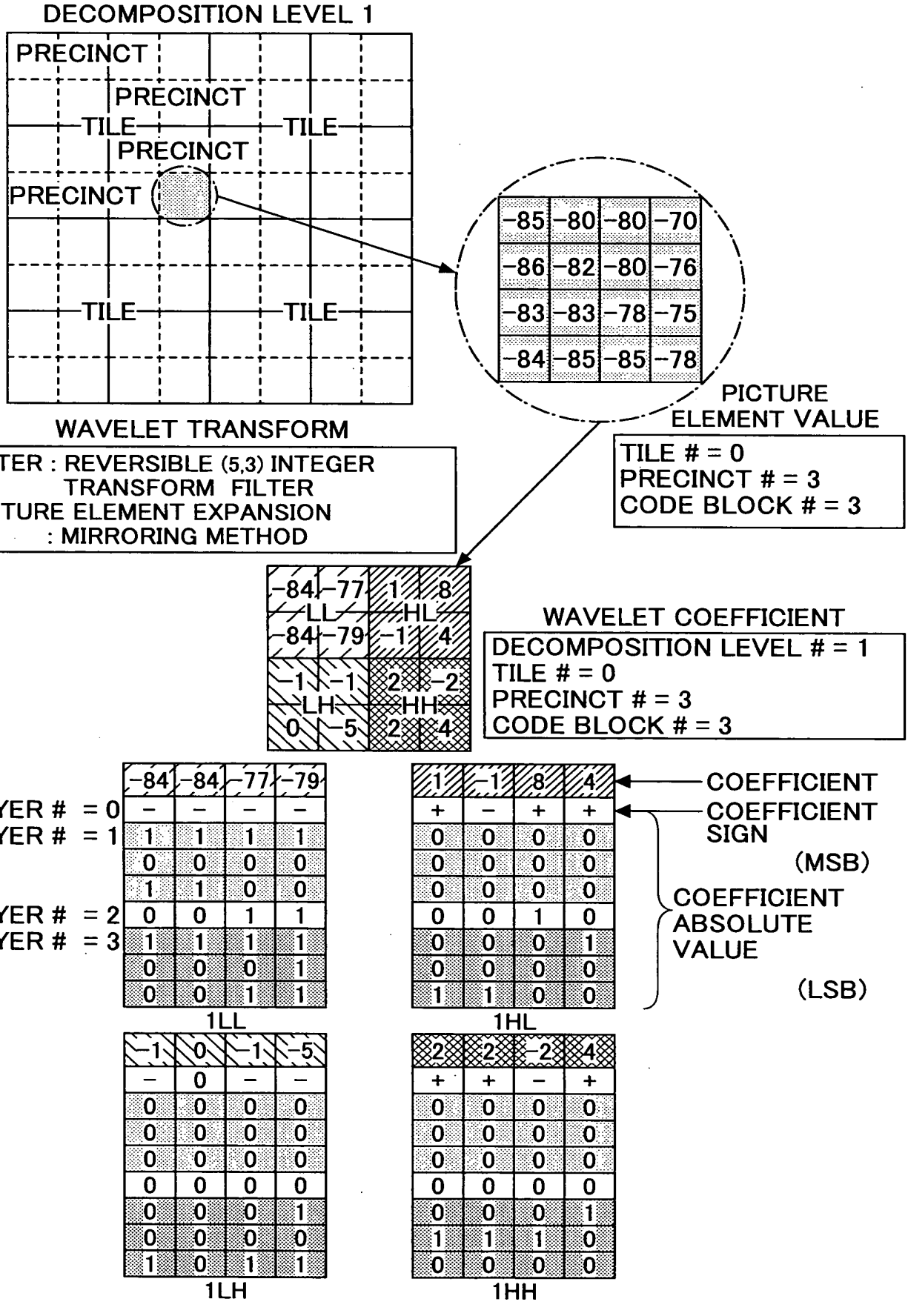

DECOMPOSITION LEVEL 1
PRECINCT
PRECINCT
TILE
TILE
PRECINCT
PRECINCT
TILE
TILE
-85 -80 -80 -70
-86 -82 -80 -76
-83 -83 -78 -75
-84 -85 -85 -78
PICTURE ELEMENT VALUE
TILE # = 0
PRECINCT # = 3
CODE BLOCK # = 3
WAVELET TRANSFORM
FILTER : REVERSIBLE (5,3) INTEGER TRANSFORM FILTER
PICTURE ELEMENT EXPANSION : MIRRORING METHOD
-84 -77 1 8
LL HL
-84 -79 -1 4
-1 -1 2 -2
LH HH
0 -5 2 4
WAVELET COEFFICIENT
DECOMPOSITION LEVEL # = 1
TILE # = 0
PRECINCT # = 3
CODE BLOCK # = 3
LAYER # = 0
LAYER # = 1
LAYER # = 2
LAYER # = 3
-84 -84 -77 -79
1LL
1 -1 8 4
COEFFICIENT
COEFFICIENT SIGN
(MSB)
COEFFICIENT ABSOLUTE VALUE
(LSB)
1HL
-1 0 -1 -5
1LH
2 2 -2 4
1HH

FIG.6

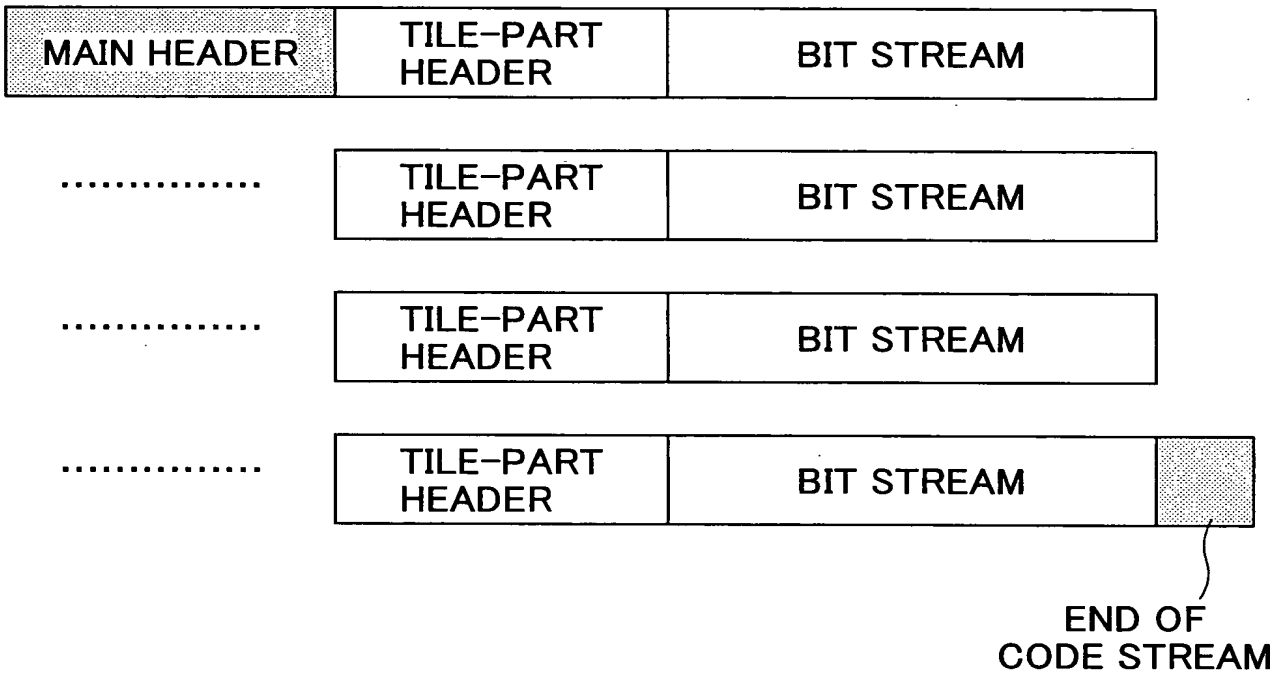

MAIN HEADER
TILE-PART HEADER
BIT STREAM
TILE-PART HEADER
BIT STREAM
TILE-PART HEADER
BIT STREAM
TILE-PART HEADER
BIT STREAM
END OF CODE STREAM

FIG.7

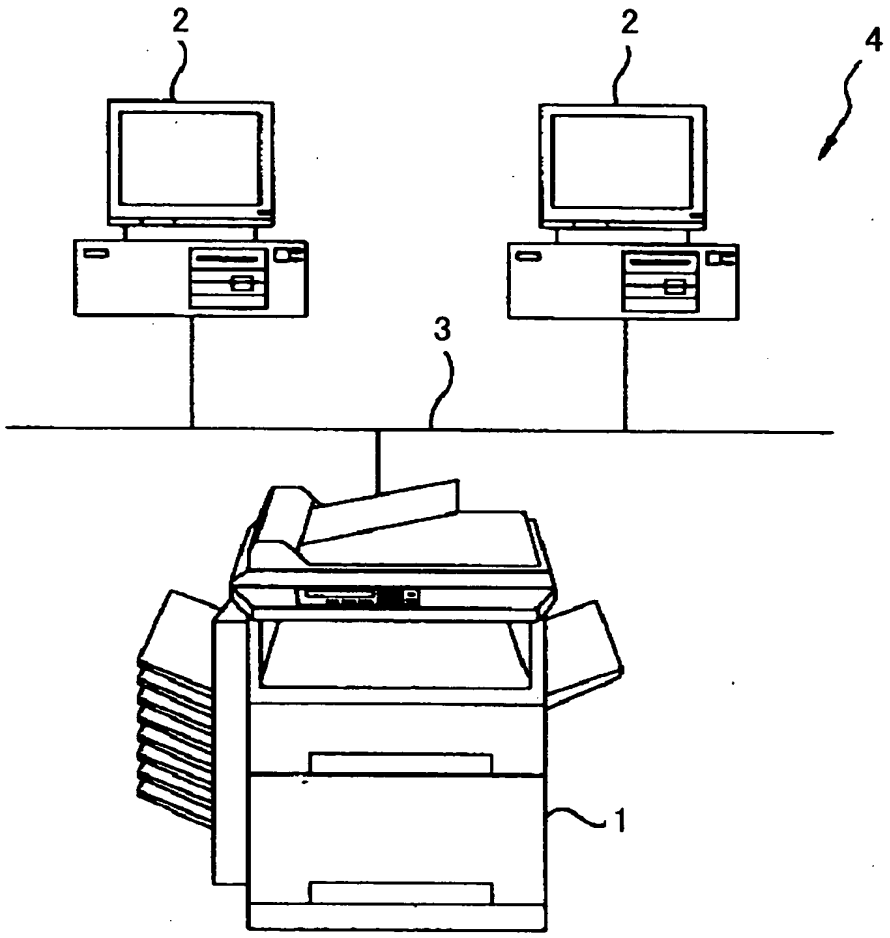


FIG.8

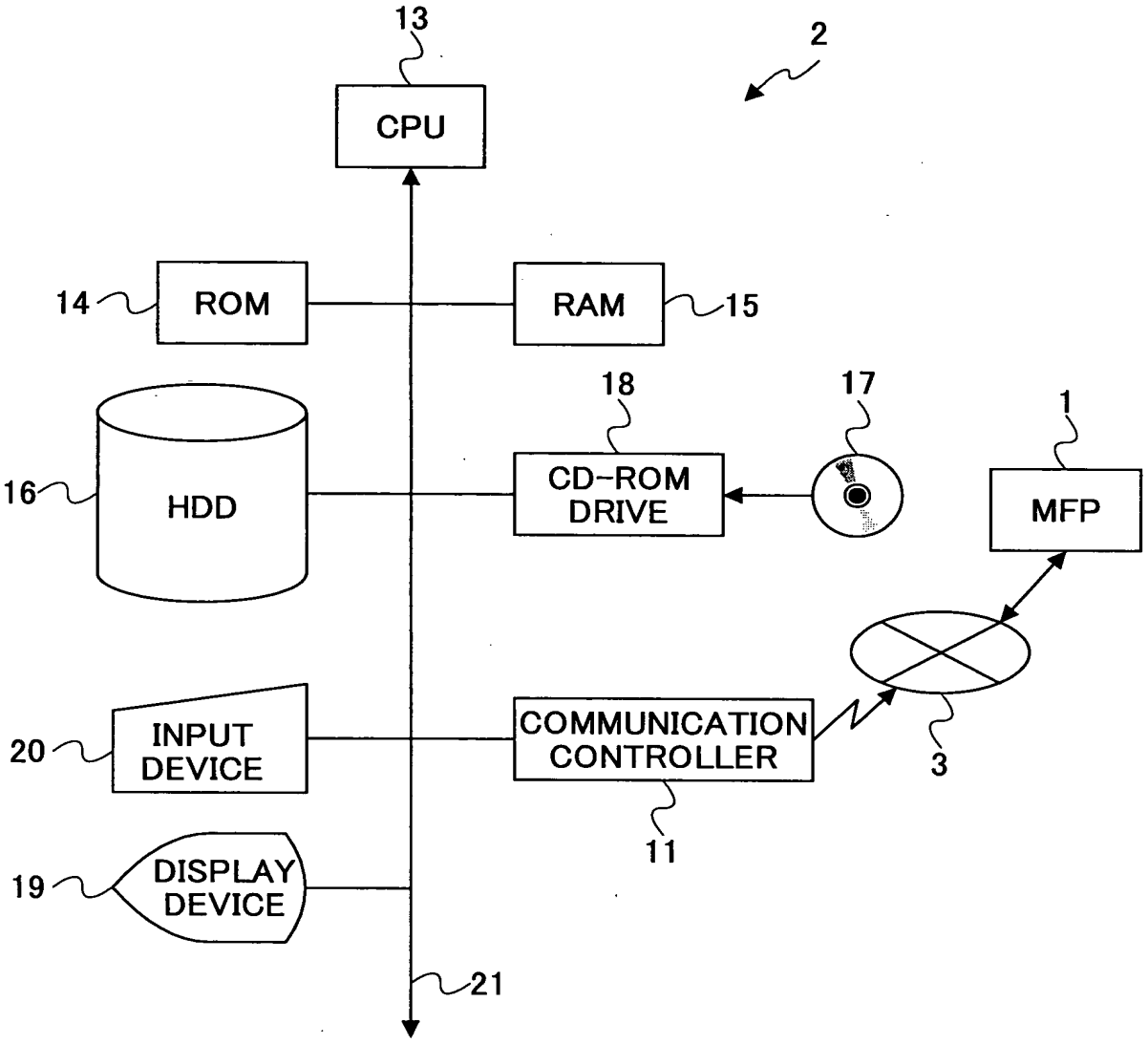

13
2
CPU
14
ROM
RAM
15
18
17
1
16
HDD
CD-ROM DRIVE
MFP
20
INPUT DEVICE
COMMUNICATION CONTROLLER
3
11
19
DISPLAY DEVICE
21

FIG.9A

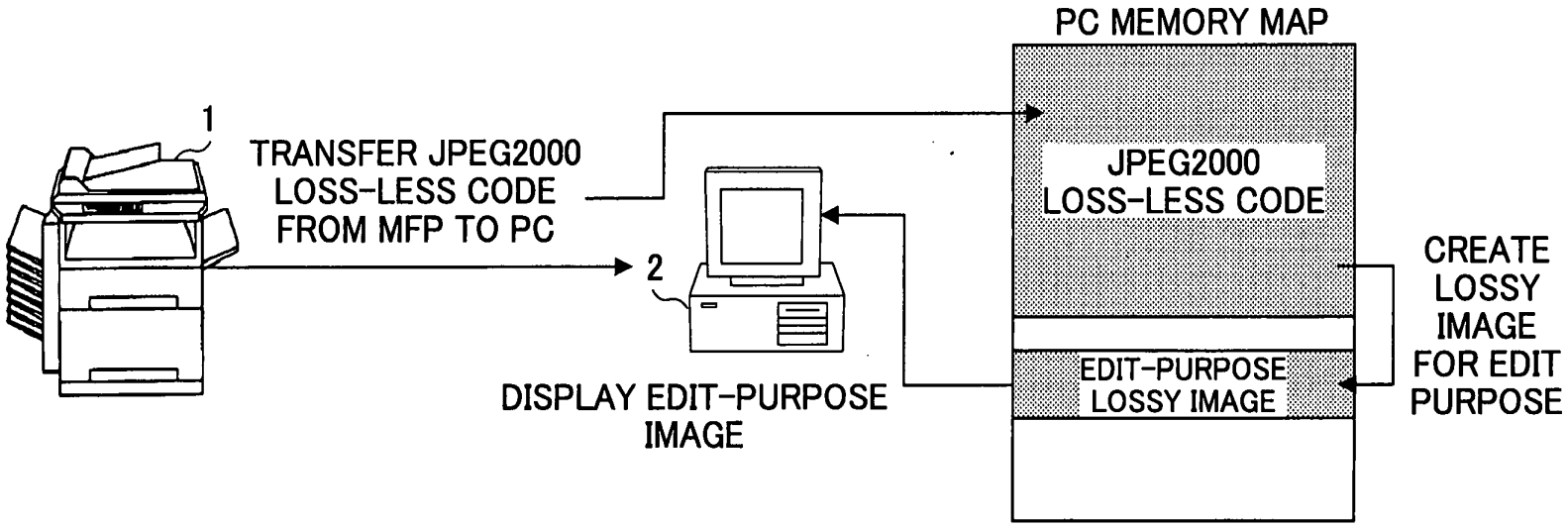

PC MEMORY MAP
1
TRANSFER JPEG2000
LOSS-LESS CODE
FROM MFP TO PC
2
JPEG2000
LOSS-LESS CODE
CREATE
LOSSY
IMAGE
FOR EDIT
PURPOSE
EDIT-PURPOSE
LOSSY IMAGE
DISPLAY EDIT-PURPOSE
IMAGE

FIG.9B

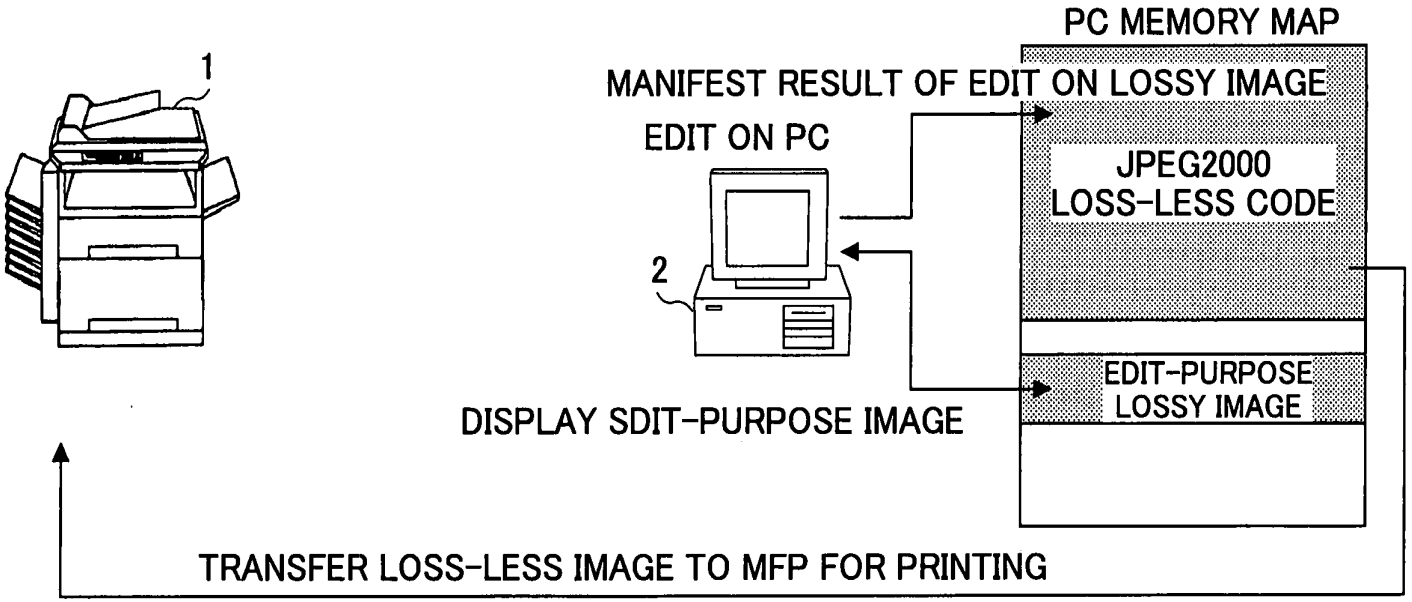

PC MEMORY MAP
1
MANIFEST RESULT OF EDIT ON LOSSY IMAGE
EDIT ON PC
JPEG2000
LOSS-LESS CODE
2
EDIT-PURPOSE
LOSSY IMAGE
DISPLAY SDIT-PURPOSE IMAGE
TRANSFER LOSS-LESS IMAGE TO MFP FOR PRINTING

FIG.10

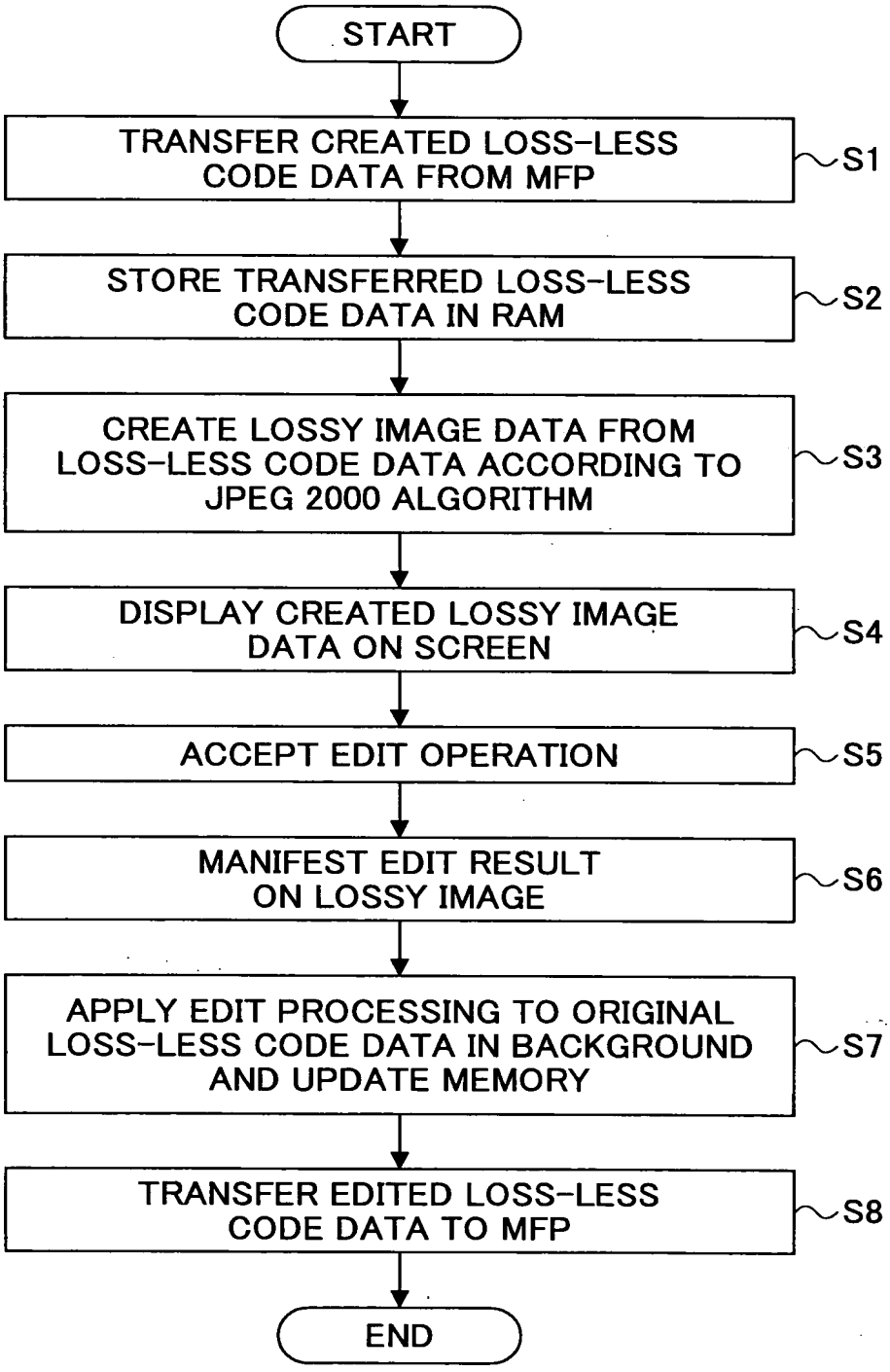

START
TRANSFER CREATED LOSS-LESS CODE DATA FROM MFP
S1
STORE TRANSFERRED LOSS-LESS CODE DATA IN RAM
S2
CREATE LOSSY IMAGE DATA FROM LOSS-LESS CODE DATA ACCORDING TO JPEG 2000 ALGORITHM
S3
DISPLAY CREATED LOSSY IMAGE DATA ON SCREEN
S4
ACCEPT EDIT OPERATION
S5
MANIFEST EDIT RESULT ON LOSSY IMAGE
S6
APPLY EDIT PROCESSING TO ORIGINAL LOSS-LESS CODE DATA IN BACKGROUND AND UPDATE MEMORY
S7
TRANSFER EDITED LOSS-LESS CODE DATA TO MFP
S8
END

FIG.11

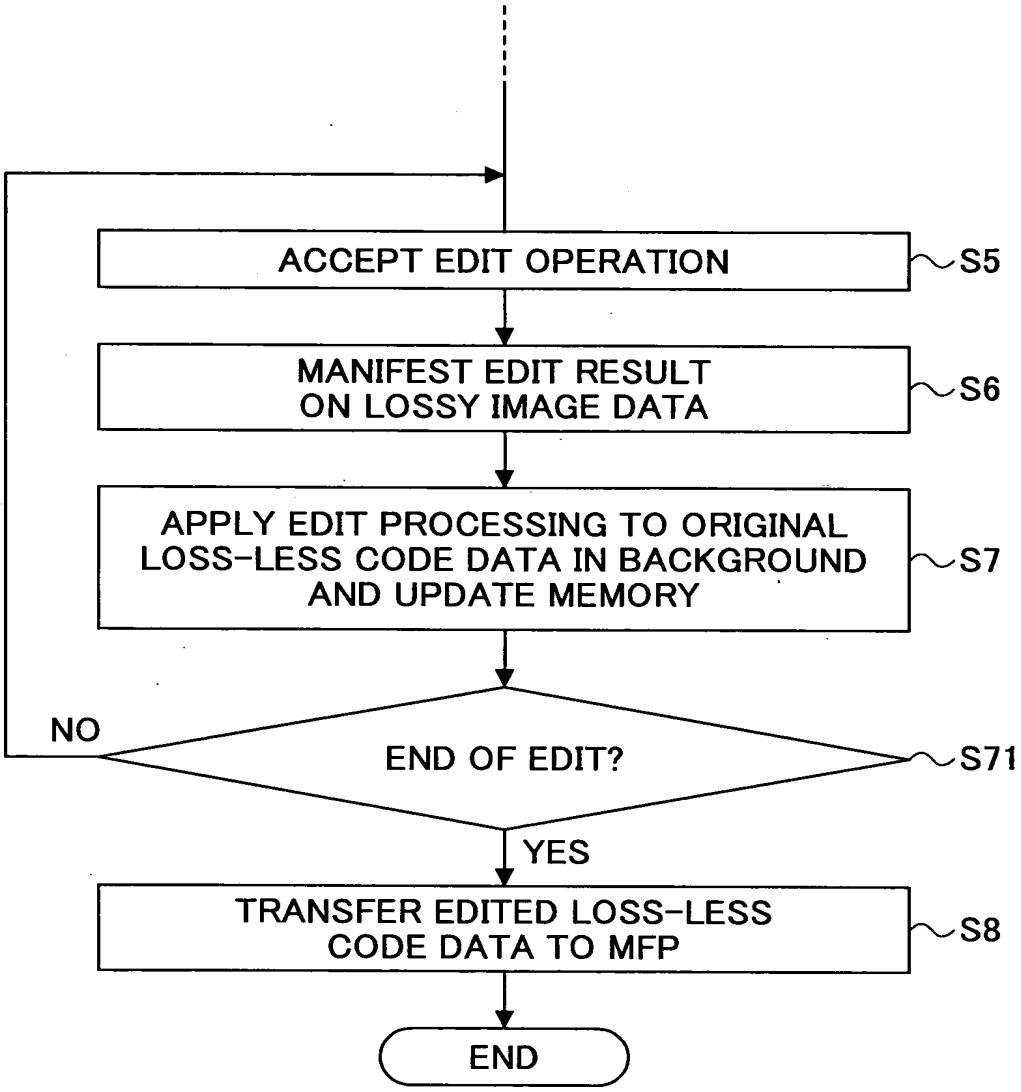

ACCEPT EDIT OPERATION
S5
MANIFEST EDIT RESULT ON LOSSY IMAGE DATA
S6
APPLY EDIT PROCESSING TO ORIGINAL LOSS-LESS CODE DATA IN BACKGROUND AND UPDATE MEMORY
S7
NO
END OF EDIT?
S71
YES
TRANSFER EDITED LOSS-LESS CODE DATA TO MFP
S8
END

FIG.12

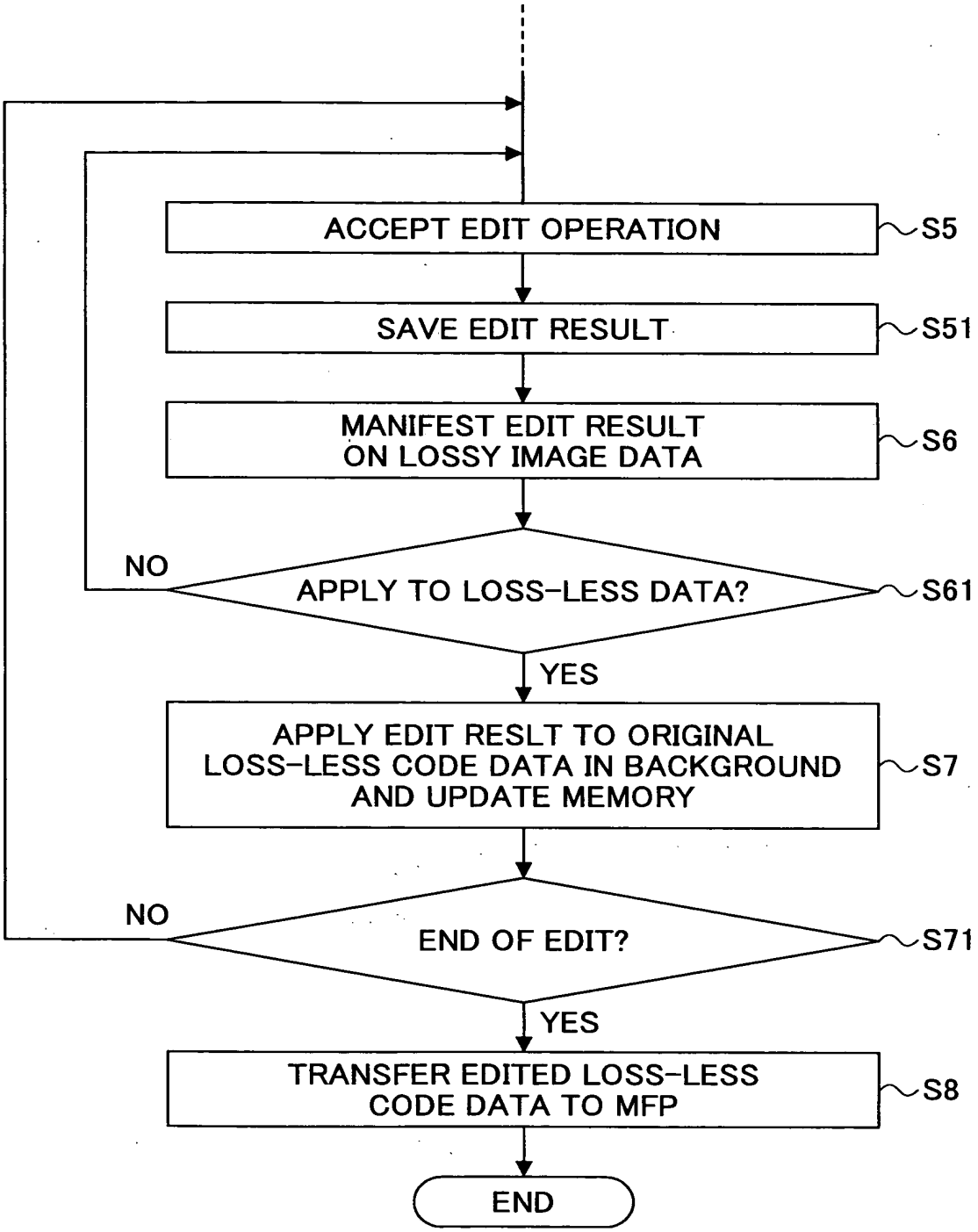

ACCEPT EDIT OPERATION
S5
SAVE EDIT RESULT
S51
MANIFEST EDIT RESULT ON LOSSY IMAGE DATA
S6
NO
APPLY TO LOSS-LESS DATA?
S61
YES
APPLY EDIT RESLT TO ORIGINAL LOSS-LESS CODE DATA IN BACKGROUND AND UPDATE MEMORY
S7
NO
END OF EDIT?
S71
YES
TRANSFER EDITED LOSS-LESS CODE DATA TO MFP
S8
END

FIG.13

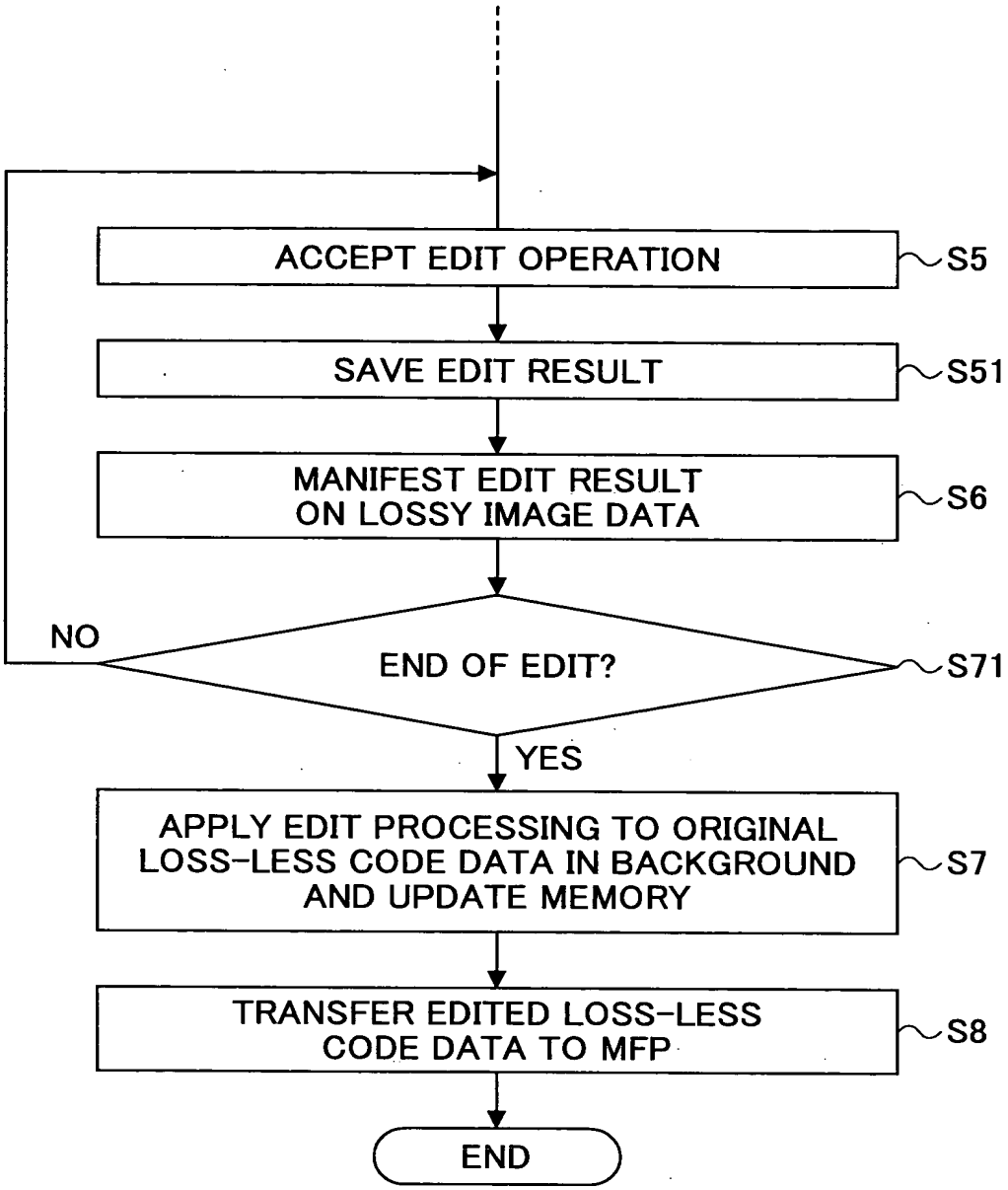
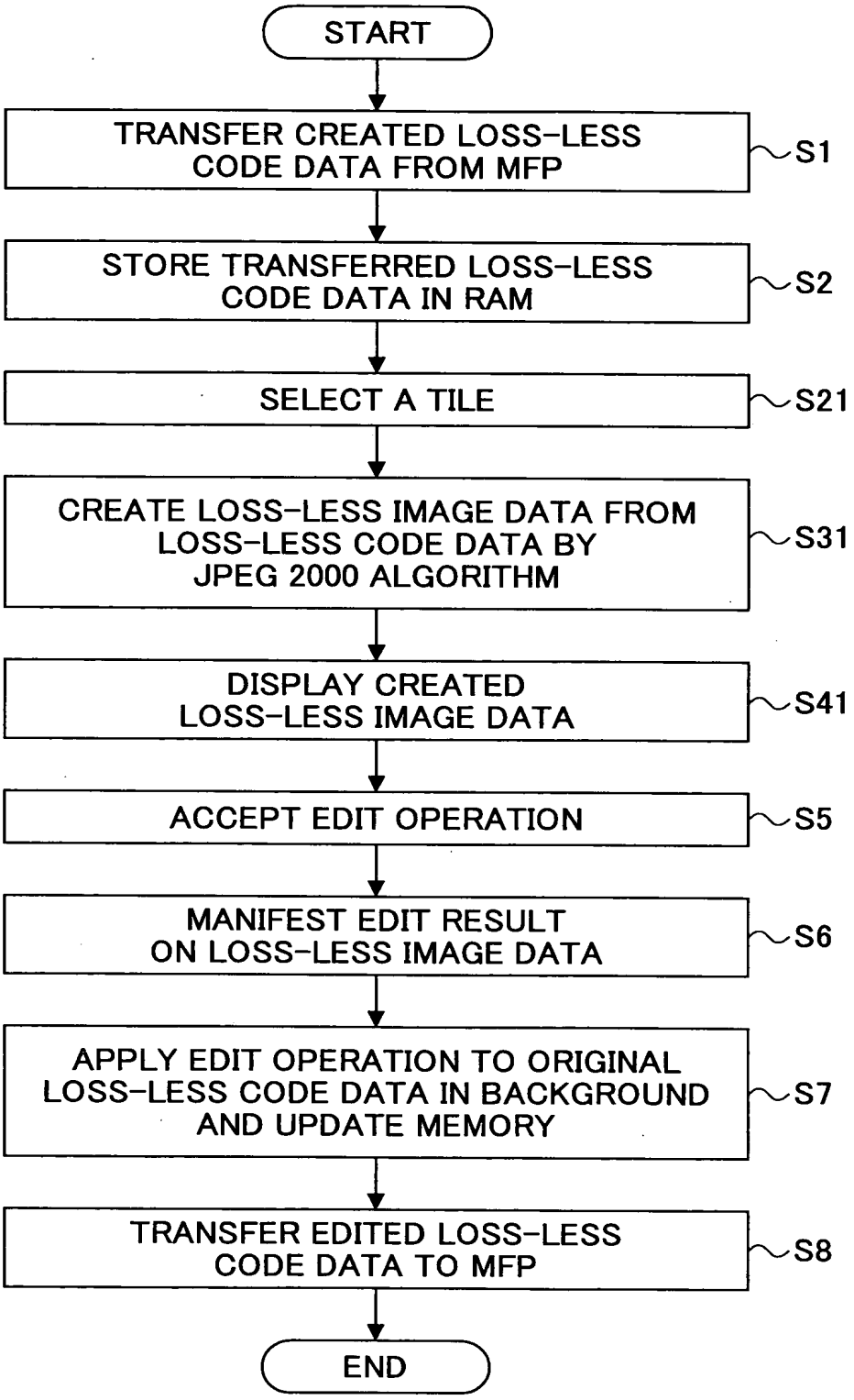

ACCEPT EDIT OPERATION
S5
SAVE EDIT RESULT
S51
MANIFEST EDIT RESULT ON LOSSY IMAGE DATA
S6
NO
END OF EDIT?
S71
YES
APPLY EDIT PROCESSING TO ORIGINAL LOSS-LESS CODE DATA IN BACKGROUND AND UPDATE MEMORY
S7
TRANSFER EDITED LOSS-LESS CODE DATA TO MFP
S8
END

FIG.14


START
TRANSFER CREATED LOSS-LESS CODE DATA FROM MFP
S1
STORE TRANSFERRED LOSS-LESS CODE DATA IN RAM
S2
SELECT A TILE
S21
CREATE LOSS-LESS IMAGE DATA FROM LOSS-LESS CODE DATA BY JPEG 2000 ALGORITHM
S31
DISPLAY CREATED LOSS-LESS IMAGE DATA
S41
ACCEPT EDIT OPERATION
S5
MANIFEST EDIT RESULT ON LOSS-LESS IMAGE DATA
S6
APPLY EDIT OPERATION TO ORIGINAL LOSS-LESS CODE DATA IN BACKGROUND AND UPDATE MEMORY
S7
TRANSFER EDITED LOSS-LESS CODE DATA TO MFP
S8
END